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(PTO-1449)

ATTY. DOCKET NO.

23623-7043

SERIAL NO.

09/436,513

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Genencor International, Inc.

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November 9, 1999

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1652

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	NAME	Class	Subclass	Filing Date If Appropriate
	A1	5,403,737	04/04/95	Abrahmsen et al.			
	A2	5,629,173	05/13/97	Abrahmsen et al.			
	A3	5,316,935	05/31/94	Arnold et al.			
	A4	5,208,158	05/04/93	Bech et al.			
	A5	5,244,791	09/14/93	Estell			
	A6	5,316,941	05/31/94	Estell et al.			
	A7	5,955,340	02/21/99	Bott			

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FOREIGN PATENT DOCUMENTS

EXAM'R INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	Subclass	TRANSLAT'N
	B1	EP 3 328 229 A1	08/16/89	EP			
	B2	WO 00/28007	05/18/00	PCT			
	B3	WO 00/37658	06/29/00	PCT			
	B4	WO 91/16423	04/18/91	PCT			
	B5	WO 96/27671	02/27/96	PCT			
	B6	WO 97/37007	10/09/97	PCT			
	B7	WO 99/20723	04/29/99	PCT			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C1	Abrahmsen et al., "Engineering Subtilisin and Its Substrates for Efficient Ligation of Peptide Bonds in Aqueous Solution," <u>Biochemistry</u> , 30:4151-59 (1991)
C2	Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," <u>Science</u> , 258:307-310 (1992)
C3	Alvear et al., "Inactivation of Chicken Liver Mevalonate 5-Diphosphate Decarboxylase by Sulfhydryl-Directed Reagents: Evidence of a Functional Dithiol," <u>Biochimica et Biophysica Acta</u> , 994:7-11 (1989)
C4	Barbas et al., "A Search for Peptide Ligase: Cosolvent-Mediated Conversion of Proteases to Esterases for Irreversible Synthesis of Peptides," <u>J. Am. Chem. Soc.</u> , 110:5162-66 (1988)
C5	Barbas, et al., "Papain Catalysed Peptide Synthesis: Control of Amidase Activity and the Introduction of Unusual Amino Acids," <u>J. Chem. Soc., Chem. Commun.</u> , 533-34 (1987)
C6	Bech et al., "Significance of Hydrophobic S <sub>4</sub> -P <sub>4</sub> Interactions in Subtilisin 309 from <i>Bacillus lentus</i> ," <u>Biochemistry</u> , 32:2847-2852 (1993)

EXAMINER

DATE CONSIDERED

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

✓ C7	Be Il et al., "Kinetic Studies on the Peroxidase Activity of Selenosubtilisin," <u>Biochemistry</u> , 32:3754-3762 (1993)
C8	Berglund et al., "Altering the Specificity of Subtilisin <i>B. Lentus</i> by Combining Site-Directed Mutagenesis and Chemical Modification," <u>Bioorganic &amp; Mechanical Chemistry Letters</u> , 6:2507-2512 (1996)
C9	Betzel et al., "Crystal Structure of the Alkaline Proteinase Savinase <sup>TM</sup> from <i>Bacillus lentus</i> at 1.4 Å Resolution," <u>J. Mol. Biol.</u> , 223:427-445 (1992)
C10	Bodwell et al., "Sulphydryl-Modifying Reagents Reversibly Inhibit Binding of Glucocorticoid-Receptor Complexes to DNA-Cellulose," <u>Biochemistry</u> , 23:1392-1398 (1984)
C11	Bonneau et al., "Alteration of the Specificity of Subtilisin BPN' by Site-Directed Mutagenesis in its S <sub>1</sub> and S <sub>1</sub> ' Binding Sites," <u>J. Am. Chem. Soc.</u> , 113:1026-30 (1991)
C12	Brocklehurst, "Specific Covalent Modification of Thiols: Applications in the Study of Enzymes and Other Biomolecules," <u>Int. J. Biochem.</u> , 10:259-274 (1979)
C13	Bruice et al., "Novel Alkyl Alkanethiolsulfonate Sulphydryl Reagents. Modification of Derivatives of L-Cysteine," <u>Journal of Protein Chemistry</u> , 1:47-58 (1982)
C14	Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," <u>J. Agric. Food Chem.</u> , 40:356-362 (1992)
C15	Chen et al., "Incorporation of Unnatural Amino Acid Derivatives into a Peptide Bond via an Oxime Ester Catalysed By Papain or Lipase," <u>Chem. Commun.</u> , 165-66 (1996)
C16	Chen et al., "Kinetically Controlled Peptide Bond Formation in Anhydrous Alcohol Catalyzed by the Industrial Protease Alcalase," <u>J. Org. Chem.</u> , 57:6960-65 (1992)
C17	Chen et al., "Probing the S-1' Subsite Selectivity of an Industrial Alkaline Protease in Anhydrous t-Butanol," <u>Bioorganic &amp; Medicinal Chemistry Letters</u> , 3(4):727-33 (1993)
C18	Daly et al., "Formation of Mixed Disulfide Adducts at Cysteine-281 of the Lactose Repressor Protein Affects Operator and Inducer Binding Parameters," <u>Biochemistry</u> , 25:5468-5474 (1986)
C19	Davies et al., "A Semisynthetic Metalloenzyme Based on a Protein Cavity That Catalyzes the Enantioselective Hydrolysis of Ester and Amide Substrates," <u>J. Am. Chem. Soc.</u> , 119:11643-11652 (1997)
C20	Davis, B.G., et al., "Altering the specificity of subtilisin <i>Bacillus lentus</i> through the introduction of positive charge at single amino acid sites," <u>Bioorganic and Medicinal Chemistry</u> , (1999 Nov.) 7(11) 2303-11, XPO000892841
C21	Davis, B.G., et al., "Controlled site selective protein glycosylation for precise glycan structure catalytic activity relationships," <u>Biorganic &amp; Medicinal Chemistry</u> , Vol. 8, 2000, pp. 1527-1535
C22	Davis, B.G., et al., "Glycomethanethiosulfonates: powerful reagents for protein glycosylation," <u>Tetrahedron: Asymmetry</u> , NL, Elsevier Science Publishers, Amsterdam, Vol 11, No. 1, January 2000 (2000-01), pp. 245-262

EXAMINER

DATE CONSIDERED

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C23	Davis, B.G., et al., "Glycosyldisulfides: a new class of solution and solid phase glycosyl donors," <i>Chem. Commun.</i> , 2001, pp.189-190
C24	Davis, B.G., et al., "The controlled introduction of multiple negative charge at single amino acid sites in subtilisin bacillus lentus," <i>Bioorganic and Medicinal Chemistry</i> , (1999 Nov.) 7 (11) 2293-301, XPO000892840
C25	Davis, Benjamin G, et al., "The Controlled Glycosylation of a Protein with a Bivalent Glycan: Towards a New Class of Glycoconjugates, Glycodendriproteins," <i>Chem. Commun.</i> , 2001, pp. 351-352
C26	DeSantis et al., "Chemical Modifications at a Single Site Can Induce Significant Shifts in the pH Profiles of a Serine Protease," <i>J. Am Chem. Soc.</i> , 120:8582-8586 (1998)
C27	Desantis, G., et al, "Probing the altered specificity and catalytic properties of mutant subtilisin chemically modified at position S156C and S166C in the S1 pocket," <i>Bioorganic and Medicinal Chemistry</i> , (1997) 7/7 (1381-1387), XP0000892843
C28	Di Bello, "Total Synthesis of Proteins by Chemical Methods: The Horse Heart Cytochrome C Example," <i>Gazzetta Chimica Italiana</i> , 126:189-197 (1996)
C29	Dime, DS., "Protein Topology and Ion Channel Research," Toronto Research Chemicals, Inc. (catalog date unknown)
C30	Ekberg et al., "Enzymatic Coupling of Two D-Amino Acid Residues in Aqueous Media," <i>Tetrahedron Letters</i> , 30(5):583-86 (1989)
C31	Engler et al., "Critical Functional Requirement for the Guanidinium Group of the Arginine 41 Side Chain of Human Epidermal Growth Factor as Revealed by Mutagenic Inactivation and Chemical Reactivation," <i>The Journal of Biological Chemistry</i> , 267:2274-2281 (1992)
C32	Frillingos et al., "Cysteine-Scanning Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of <i>Escherichia coli</i> ," <i>Biochemistry</i> , 36:269-273 (1997)
C33	Gloss et al., "Examining the Structural and Chemical Flexibility of the Active Site Base, Lys-258, of <i>Escherichia coli</i> Aspartate Aminotransferase by Replacement with Unnatural Amino Acids," <i>Biochemistry</i> , 34:12323-12332 (1995)
C34	Graycar et al., "Altering the Proteolytic Activity of Subtilisin through Protein Engineering," <i>Annals New York Academy of Science</i> , 672:71-79 (1992)
✓ C35	Gron et al., "A Highly Active and Oxidation-Resistant Subtilisin-Like Enzyme Produced by a Combination of Site-Directed Mutagenesis and Chemical Modification," <i>Eur. J. Biochem.</i> , 194:897-901 (1990)
C36	Gron et al., "Extensive Comparison of the Substrate Preferences of Two Subtilisins As Determined with Peptide Substrates Which Are Based on the Principle of Intramolecular Quenching," <i>Biochemistry</i> , 31(26):6011-18 (1992)
C37	Hempel et al., "Selective Chemical Modification of Human Liver Aldehyde Dehydrogenases <i>E</i> <sub>1</sub> and <i>E</i> <sub>2</sub> by Iodoacetamide," <i>The Journal of Biological Chemistry</i> , 256:10889-10896 (1981)
C38	Hilvert et al., "A Highly Active Thermophilic Semisynthetic Flavoenzyme," <i>J. Am. Chem. Soc.</i> , 110:682-689 (1988)

EXAMINER

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C39	Hilvert et al., "New Semisynthetic Flavoenzyme Based on a Tetrameric Portein Template, Glyceraldehyde-3-Phosphate Dehydrogenase," <u>J. Am. Chem. Soc.</u> , 107:5805-5806 (1985)
C40	House et al., " <sup>1</sup> H NMR Spectroscopic Studies of Selenosubtilisin," <u>Biochemistry</u> , 32:3468-3473 (1993)
C41	Huang et al., "Improving the Activity of Immobilized Subtilisin by Site-Specific Attachment to Surfaces," <u>Anal. Chem.</u> , 69:4601-4607 (1997)
C42	Jonsson et al., "Temperature Effects on Protease Catalyzed Acyl Transfer Reactions in Organic Media," <u>Journal of Molecular Catalysis B: Enzymatic</u> , 2:43-51 (1996)
C43	Kaiser, "Catalytic Activity of Enzymes Altered at Their Active Sites," <u>Angew. Chem. Int. Ed. Engl.</u> , 27:913-922 (1988)
C44	Kanaya et al., "Role of Cysteine Residues in Ribonuclease H from <i>Escherichia coli</i> ," <u>Biochem. J.</u> , 271:59-66 (1990)
C45	Kato et al., "First Stereoselective Synthesis of D-Amino Acid N-Alkyl Amide Catalyzed by D-Aminopeptidase," <u>Tetrahedron</u> , 45(18) 5743-54 (1989)
C46	Kawase et al., "Effect of Chemical Modification of Tyrosine Residues on Activities of Bacterial Lipase," <u>Journal of Fermentation and Bioengineering</u> , 72:317-319 (1991)
C47	Kawashiro et al., "Effect of Ester Moiety of Substrates on Enantioselectivity of Protease Catalysis in Organic Media," <u>Biochemistry Letters</u> , 18(12):1381-86 (1996)
C48	Kenyon et al., "Novel Sulfhydryl Reagents," <u>Methods Enzymol.</u> , 47:407-430 (1977)
C49	Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses," <u>Analytical Biochemistry</u> , 180:231-236 (1989)
C50	Kluger et al., "Amino Group Reactions of the Sulfhydryl Reagent Methyl Methanesulfonylthioate. Inactivation of D-3-hydroxybutyrate Dehydrogenase and Reaction with Amines in Water," <u>Can. J. Biochem.</u> , 58:629-632 (1980)
C51	Kokubo et al., "Flavohemoglobin: A Semisynthetic Hydroxylase Acting in the Absence of Reductase," <u>J. Am. Chem. Soc.</u> , 109:606-607 (1987)
C52	Konigsberg, "Reduction of Disulfide Bonds in Proteins with Dithiothreitol," <u>Methods in Enzymology</u> , 25:185-188 (1972)
C53	Kuang et al., "Enantioselective Reductive Amination of $\alpha$ -Amino Acids by a Pyridoxamine Cofactor in A Protein Cavity," <u>J. Am. Chem. Soc.</u> , 118:10702-10706 (1996)
C54	Lewis et al., "Determination of Interactive Thiol Ionizations in Bovine Serum Albumin, Glutathione, and Other Thiols by Potentiometric Difference Titration," <u>Biochemistry</u> , 19:6129-6137 (1980)
C55	Liu et al., "Site-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," <u>Biochemistry</u> , 35:11865-11873 (1996)
C56	Lloyd, R.C. et al., "Site Selective Glycosilation of Subtilisin Bacillus Lentus Causes Dramatic Increase in Esterase Activity," <u>Biorganic &amp; Medicinal Chemistry</u> , Vol. 8, 2000, pp. 1537-1544

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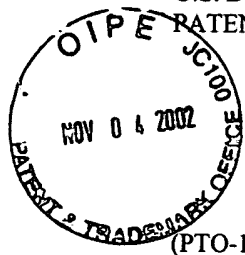
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C57	Margolin et al., "Incorporation of D-Amino Acids into Peptides via-Enzymatic Condensation in Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:7885-87 (1987)
C58	Margolin et al., "Peptide Synthesis Catalyzed by Lipases in Anhydrous Organic Solvents," <u>J. Am. Chem. Soc.</u> , 109:3802-04 (1987)
C59	Miller et al., "Peroxide Modification of Monoalkylated Glutathione Reductase," <u>The Journal of Biological Chemistry</u> , 266:19342-19360 (1991)
C60	Moree et al., "Exploitation of Subtilisin BPN as Catalyst for the Synthesis of Peptides Containing Noncoded Amino Acids, Peptide Mimetics and Peptides Conjugates," <u>J. Am. Chem. Soc.</u> , 119:3942-47 (1997)
C61	Morihara et al., " $\alpha$ -Chymotrypsin as the Catalyst for Peptide Synthesis," <u>Biochem. J.</u> , 163:531-42 (1977)
C62	Nakatsuka et al., "Peptide Segment Coupling Catalyzed by the Semisynthetic Enzyme Thiolsubtilisin," <u>J. Am. Chem. Soc.</u> , 109:3808-10 (1987)
C63	Nakayama et al., "Chemical Modification of Cysteiny, Lysyl and Histidyl Residues of Mouse Liver 17 $\beta$ -Hydroxysteroid Dehydrogenase," <u>Biochimica et Biophysica Acta</u> , 1120:144-150 (1992)
C64	Neet, K.E. and Koshland, D.E., "The Conversion of Serine at the Active Site of Subtilisin to Cysteine: A 'Chemical Mutation,'" <u>Proc. Nat. Acad. Sci. USA</u> , 56(5):1606-1611.
C65	Nishimura et al., "Reversible Modification of the Sulfhydryl Groups of <i>Escherichia coli</i> Succinic Thiokinase with Methanethiolating Reagents, 5,5'-Dithio-bis(2-Nitrobenzoic Acid), p-Hydroxymercuribenzoate, and Ethylmercurithiosalicylate," <u>Archives of Biochemistry and Biophysics</u> , 170:461-467 (1975)
C66	O'Connor et al., "Probing an Acyl Enzyme of Selenosubtilisin by Raman Spectroscopy," <u>J. Am. Chem. Soc.</u> , 118:239-240 (1996)
C67	Pardo et al., "Cysteine 532 and Cystein 545 Are the N-Ethylmaleimide-Reactive Residues of the <i>Neurospora</i> Plasma Membrane H <sup>+</sup> -ATPase," <u>The Journal of Biological Chemistry</u> , 264:9373-9379 (1989)
C68	Peterson et al., "Nonessential Active Site Residues Modulate Selenosubtilisin's Kinetic Mechanism," <u>Biochemistry</u> , 34:6616-6620 (1995)
C69	Peterson et al., "Selenosubtilisin's Peroxidase Activity Does Not Require an Intact Oxyanion Hole," <u>Tetrahedron</u> , 53:12311-12317 (1997)
C70	Planas et al., "Reengineering the Catalytic Lysine of Aspartate Aminotransferase by Chemical Elaboration of a Genetically Introduced Cysteine," <u>Biochemistry</u> , 30:8268-8276 (1991)
C71	Plettner, E., et al., "Modulation of Esterase and Amidase Activity of Subtilisin Bacillus Lentus by Chemical Modification of Cysteine Mutants," <u>Journal of the American Chemical Society</u> , (2 Jun. 1999) 121/21, 4977-4981, XPO000891274.

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DATE CONSIDERED

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C72	Plettner, Erika et al., "A Combination Approach to Chemical Modification of Subtilisin Bacillus Lentus," <u>Bioorganic &amp; Medicinal Chemistry Letters</u> (Sept. 8, 1998) Vol. 8, No. 17, pp. 2291-2296, XP0004138220
C73	Polgar et al., "A New Enzyme Containing a Synthetically Formed Active Site. Thiol-Subtilisin," <u>Journal of American Chemical Society</u> , 88:3153-3154 (1966)
C74	Polgar, "Spectrophotometric Determination of Mercaptide Ion, an Activated Form of SH-Group in Thiol Enzymes," <u>FEBS Letters</u> , 38:187-190 (1974)
C75	Presenting Our Line of MTS Compounds," Toronto Research Chemicals Inc. (catalog, date unknown)
C76	Radziejewski et al., "Catalysis of N-Alkyl-1,4-Dihydronicotinamide Oxidation by a Flavopapain: Rapid Reaction in All Catalytic Steps," <u>J. Am. Chem. Soc.</u> , 107:3352-3354 (1985)
C77	Raia et al., "Activation of <i>Sulfolobus Solfataricus</i> Alcohol Dehydrogenase by Modification of Cysteine Residue 38 with Iodoacetic Acid," <u>Biochemistry</u> , 35:638-647 (1996)
C78	Ramachandran et al., "Stabilization of Barstar by Chemical Modification of the Buried Cysteines," <u>Biochemistry</u> , 35:8776-8785 (1996)
C79	Roberts et al., "Reactivity of Small Thiolate Anions and Cysteine-25 in Papain Toward Methyl Methanethiosulfonate," <u>Biochemistry</u> , 25:5595-5601 (1986)
C80	Rokita et al., "Synthesis and Characterization of a New Semisynthetic Enzyme, Flavolysozyme," <u>J. Am. Chem. Soc.</u> , 108:4984-4987 (1986)
C81	Sears et al., "Engineering Enzymes for Bioorganic Synthesis. Peptide Bond Formation," <u>Biotechnol. Prog.</u> , 12:423-33 (1996)
C82	Sears et al., "Engineering Subtilisin for Peptide Coupling: Studies on the Effects of Counterions and Site-Specific Modifications on the Stability and Specificity of the Enzyme," <u>J. Am. Chem. Soc.</u> , 116:6521-30 (1994)
C83	Siddiqui et al., "Arthrobacter D-Xylose Isomerase: Chemical Modification of Carboxy Groups and Protein Engineering Of pH Optimum," <u>Biochem. J.</u> , 295:685-691 (1993)
C84	Smith et al., "An Engineered Change in Substrate Specificity of Ribulosebisphosphate Carboxylase/Oxygenase," <u>The Journal of Biological Chemistry</u> , 265:1243-1245 (1990)
C85	Smith et al., "Chemical Modification of Active Site Residues in $\gamma$ -Glutamyl Transpeptidase," <u>The Journal of Biological Chemistry</u> , 270:12476-12480 (1995)
C86	Smith et al., "Nonessentiality of the Active Sulphydryl Group of Rabbit Muscle Creatine Kinase," <u>The Journal of Biological Chemistry</u> , 249:3317-3318 (1974)
C87	Smith et al., "Restoration of Activity to Catalytically Deficient Mutants of Ribulosebisphosphate Carboxylase/Oxygenase by Aminoethylation," <u>The Journal of Biological Chemistry</u> , 263:4921-4925 (1988)
C88	Smith et al., "Simple Alkanethiol Groups for Temporary Blocking of Sulphydryl Groups of Enzymes," <u>Biochemistry</u> , 14:766-771 (1975)

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DATE CONSIDERED *11/14/02*

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C89	Smith et al., "Subtle Alteration of the Active Site of Ribulose Biphosphate Carboxylase/Oxygenase by Concerted Site-Directed Mutagenesis and Chemical Modification," <u>Biochemical and Biophysical Research Communications</u> , 152:579-584 (1988)
C90	So et al., "Lipase-Catalyzed Synthesis of Peptides Containing D-Amino Acid," <u>Enzyme Microb. Technol.</u> , 23:211-15 (1998)
C91	Soper et al., "Effects of Substrates on the Selective Modification of the Cysteine Residues of D-Amino Acid Transaminase," <u>The Journal of Biological Chemistry</u> , 254:10901-10905 (1979)
C92	Spura, A., et al. "Probing Agonist Domain of the Nicotinic Acetylcholine Receptor by Cysteine Scanning Mutagenesis Reveals Residues in Proximity to the Alpha-Bungarotoxin Binding Site," <u>Biochemistry</u> , 20 Apr. 1999 Vol. 38:16 pp. 4912-4921
C93	Stauffer et al., "Electrostatic Potential of the Acetylcholine Binding sites in the Nicotinic Receptor Probed by Reactions of Binding-Site Cysteines with Charged Methanethiosulfonates," <u>Biochemistry</u> , 33:6840-6849 (1994)
C94	Stepanov, "Proteinases as Catalysts in Peptide Synthesis," <u>Pure &amp; Appl. Chem.</u> , 68(6):1335-39 (1996)
C95	Stewart et al., "Catalytic Oxidation of Dithiols by a Semisynthetic Enzyme," <u>J. Am. Chem. Soc.</u> , 108:3480-3483 (1986)
C96	Suckling et al., "Carbon-Carbon Bond Formation Mediated by Papain Chemically Modified by Thiazolium Salts," <u>Bioorganic &amp; Medicinal Chemistry Letters</u> , 3:531-534 (1993)
C97	Svensson et al., "Mapping the Folding Intermediate of Human Carbonic Anhydrase II. Probing Substructure by Chemical Reactivity and Spin and Fluorescence Labelling of Engineered Cysteine Residues," <u>Biochemistry</u> , 34:8606-8620 (1995)
C98	Valenzuela et al., "Kinetic Properties of Succinylated and Ethylenediamine-Amidated $\delta$ -Chymotrypsins," <u>Biochim. Biophys. Acta</u> , 250:538-548 (1971)
C99	Watanabe, et al., "A Unique Enzyme from <i>Saccharothrix</i> sp. Catalyzing D-Amino Acid Transfer," <u>Biochimica et Biophysica Acta</u> , 1337:40-46 (1997)
C100	West et al., "Enzyme-catalysed Synthesis of Peptides Containing D-Amino Acids," <u>J. Chem. Soc. Chem. Commun.</u> , pp 417-18 (1986)
C101	West et al., "Enzyme-Catalyzed Irreversible Formation of Peptides Containing D-Amino Acids," <u>J. Org. Chem.</u> , 51:2728-35 (1986)
C102	West et al., "Enzymes as Synthetic Catalysts: Mechanistic and Active-Site Considerations of Natural and Modified Chymotrypsin," <u>J. Am. Chem. Soc.</u> , 112:5313-5320 (1990)
C103	West et al., "Modification of Proteases to Esterases for Peptide Synthesis: Methylchymotrypsin," <u>J. Am. Chem. Soc.</u> , 110:3709-10 (1988)

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APPLICANT

Genencor International, Inc.

FILING DATE

November 9, 1999

GROUP ART UNIT

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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

C104	White et al., "Sequential Site-Directed Mutagenesis and Chemical Modification to Convert the Active Site Arginine 292 Of Aspartate Aminotransferase to Homoarginine," <u>Journal of the American Chemical Society</u> , 114:292-293 (1992)
C105	Wong et al., "Enzymes in Organic Synthesis: use of Subtilisin and a Highly Stable Mutant Derived from Ultple Site-Specific Mutations," <u>J. Am. Chem. Soc.</u> , 112:945-53 (1990)
C106	Worku et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis of 5'-Nucleotidase," <u>FEBS Letter</u> , 167:235-240 (1984)
C107	Wu et al., "Conversion of a Protease into an Acyl Transferase: Selenosubtilisin," <u>J. Am. Chem. Soc.</u> , 111:4514-4515 (1989)
C108	Wynn et al., "Chemical Modification of Protein Thiols: Formation of Mixed Disulfides," <u>Methods in Enzymology</u> , 251:351-356 (1995)
C109	Wynn et al., "Comparison of Straight Chain and Cyclic Unnatural Amino Acids Embedded in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 6:1621-1626 (1997)
C110	Wynn et al., "Mobile Unnatural Amino Acid Side Chains in the Core of Staphylococcal Nuclease," <u>Protein Science</u> , 5:1026-1031 (1996)
C111	Wynn et al., "Unnatural Amino Acid Packing Mutants of <i>Escherichia Coli</i> Thioredoxin Produced by Combined Mutagenesis/Chemical Modification Techniques," <u>Protein Science</u> , 2:395-403 (1993)
C112	Xu et al., "Amino Acids Lining the Channel of the $\gamma$ -Am inobutyric Acid Type A Receptor Identified by Cysteine Substitution," <u>The Journal of Biological Chemistry</u> , 268:21505-21508 (1993)
C113	Zhang et al., "Protease-catalyzed Small Peptide Synthesis in Organic Media," <u>Enzyme Microb. Technol.</u> , 19:538-44 (1996)

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